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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,157	12/18/2001	Katsuhito Kitahara	P6406a	9488
20178	7590	02/20/2004		
EPSON RESEARCH AND DEVELOPMENT INC INTELLECTUAL PROPERTY DEPT 150 RIVER OAKS PARKWAY, SUITE 225 SAN JOSE, CA 95134			EXAMINER BLACKMAN, ANTHONY J	
			ART UNIT	PAPER NUMBER
			2676	
			DATE MAILED: 02/20/2004	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,157

Applicant(s)

KITAHARA ET AL.

Examiner

ANTHONY J BLACKMAN

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/17/02, 6/10/03, 7/10/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: SYSTEM, METHOD AND COMPUTER PROGRAM CONVERTING EACH PIXEL TO LUMINANCE LEVELS AND ASSIGNING COLORS ASSOCIATED WITH LUMINANCE LEVELS IN PRINTER OR DISPLAY OUTPUT DEVICES.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 9-14, 21-26 and 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by DALKE et al, US Patent No. 4,488,425.
4. As per claims 1, 13 and 25, examiner interprets DALKE et al to disclose A system, method and computer program for processing image data for display or printout by an output device,
comprising: a source data capturing unit/Input Devices-Scanner (figure 6, element 11, column 7, lines 19-21 and column 8, line 34-column 9, line 18) for obtaining source data

containing a representation in plural colors of an image, a graphic or text (column 7, lines 19-49, column 8, line 34-column 9, line 18);

a data converter/ transform circuitry-figure 6, element 14 for converting color data for each pixel in the source data to luminance data for that pixel (column 7, lines 42-49), the luminance data representing one of a plurality of luminance levels (column 7, lines 42-49); and

a color assignment unit/geometric transform circuit-figure 6, element 19 for assigning one of a plurality of colors that are available in the output device to each pixel according to a luminance level represented by the luminance data of that pixel (column 7, lines 50-61).

5. As per claims 2, 14 and 26, examiner interprets DALKE et al to meet limitations of claims 1, 13 and 25, as well as, wherein the color data of each pixel is represented by color intensity values of primary colors-CMYK and RGB (column 7, lines 19-41), and the data converter is adapted to convert the color data to the luminance data by weighting each color intensity value by a weighting factor assigned to that color intensity value (column 3, lines 7-32, column 12, lines 25-55 and column 14, lines 13-22), and summing the weighted color intensity values (column 14, lines 48-59).

6. As per claims 9, 21 and 33, DALKE et al meet limitations of claims 1, 13 and 25. DALKE et al does not expressly teach, wherein the plurality of luminance levels is N, and the color assignment unit is adapted to assign to each of the N luminance levels a

respective one of N available colors. TJANDRASUWITA suggests wherein the plurality of luminance levels is N, and the color assignment unit is adapted to assign to each of the N luminance levels a respective one of N available colors (at least located at column 3, lines 3-32, column 12, lines 25-55).

7. As per claims 10, 22 and 34, DALKE et al meet limitations per claims 1 and 13, including wherein the color assignment unit comprises color assignment selection means responsive to user input for specifying or changing the assignment of an available color to each pixel based on the luminance level represented by the luminance data of that pixel (column 3, lines 7-32 disclose means of generation of weighting luminance levels and proper assignment for defined values for areas of color sub-space for smooth transition of color modification or insertion is controlled by (column 8, lines 53-61)-an operator corresponds to both conditional features above) .

8. AS per claims 11, 23 and 35, DALKE et al disclose, wherein the output device is a printer for printing on a printing medium, and the plurality of available colors are printable colors defined by material colors provided for printing in the printer, the material colors including colors of ink or heat sensitive colorants, and the color of the printing medium itself (column 8, lines 19-23 as well as the underlined section).

9. As per claims 12, 24 and 36, DALKE et al meet limitations of claims 11, 23 and 25. DALKE et al also disclose, wherein the printable colors include halftones

(correspond to the shade, shading and lighting conditions of the following cites) that can be created by combining the material colors (column 1, lines 32-53, column 3, lines 52-66, column 8, lines 39-50, column 9, lines 39-59 and column 12, lines 35-55).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 15 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over DALKE et al, US Patent No. 4,488,245 in view of NAGAO, US Patent No. 6,628,842.

12. As per claims 3, 15 and 27 DALKE et al meets limitations of claims 2, 14 and 26, however, even though the second conversion circuit 21 converts c1, c2, c3 to RGB signals needed by the color television monitor (column 7, lines 62-64), nor the weighting function of function generator 42 of figure 7 for DALKE et al does not expressly teach, "...wherein the primary colors are red, green, and blue, and the ratio of the weighting factors is equal, or approximately equal, to R:G:B = 3:6:1 where R represents red, G represents green and B represents blue". NAGAO suggests the above limitation (column 8, line 54-column 9, line 36). It would have been obvious to one skilled in the art at the time of the invention to utilize the "Image Processing Unit for Blur Retaining

Sharpness Enhancement and Noise Suppression” 21 of figure 1, including the more detailed figure 2, elements 16b-edge detection, 16d-blur retaining coefficient computing section and 16e-a noise region weighting coefficient computing section (column 6, lines 33-66) determining RGB ratios of NAGAO to modify “The present invention [that] relates to methods and means for color detection and modification (column 1, lines 5-10)” as well as function generator—42 of figure 7, determining weighting values of DALKE et al because both inventions share similar technological environments. Therefore, it would have been obvious to modify DALKE et al with NAGAO to at least “...enhance the sharpness of photographic images (abstract, lines 1-2 of NAGAO)” and “...to reduce the noise for easier edge detection (column 8, line 62 of NAGAO)”.

13. Claims 4-8, 16-20 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over DALKE et al, US Patent No. 4,488,245 in view of TJANDRASUWITA, US Patent No. 6,198,469.

14. As per claims 4, 16 and 28, DALKE et al meets limitations of claims 1, 13 and 25, as well as, wherein the data converter comprises a luminance calculator for converting the color data for each pixel to first luminance data representing one of a first number of luminance levels (column 4, lines 23-31 and column 12, line 56-column 13, line 4), however, even though DALKE et al “...relates to methods and means for color detection and modification...and color creation systems (column 1, lines 5-10) in addition to “...evaluating...chromaticity values(i.e., ...level[s] of luminance and generating a weighting signal...for future...modification(column 3, lines 13-18),

does not expressly teach a gray level processor for further converting the first luminance data for each pixel to second luminance data representing one of the plurality of luminance levels, the plurality being a second number smaller than the first number. TJANDRASUWITA, on the other hand, suggest the well-known equivalent utilization of a gray level processor for further converting the first luminance data for each pixel to second luminance data representing one of the plurality of luminance levels (from 2, 4, 8 or 16 possible gray levels –column 7, lines 25-59), the plurality being a second number smaller than the first number (column 7, lines 19-column 8, line 35). It would have been obvious to one skilled in the art at the time of the invention to utilize the gray scale logic means of TJANDRASUWITA to modify the color detection and modification means including user utilization of a weighting signal of luminance levels to modify the image signal enabling "...operator to make color corrections to desired objects on a real-time basis (column 3, lines 52-54) of DALKE et al because TJANDRASUWITA provides greater selection of brightness/luminance levels by mode selecting circuit 403.

15. As per claims 5, 17 and 29 DALKE et al as modified meets limitations of claims 4, 16 and 28. DALKE et al suggests, wherein the gray level processor comprises:
a distribution calculator for calculating a luminance distribution by counting for each luminance level of the first number the number of pixels whose corresponding luminance data represents that luminance level, and for detecting one or more luminance levels that represent local pixel count minimums in the luminance distribution; and threshold value selecting means for setting threshold values based on

the one or more minimums; however, does not expressly teach wherein the gray level processor is adapted to reduce the first number of luminance levels to the second number based on the threshold values. TJANDRASUWITA suggests wherein the gray level processor is adapted to reduce the first number of luminance levels to the second number based on the threshold values (column 7, lines 19-column 8, line 35). It would have been obvious to one skilled in the art at the time of the invention to utilize the gray scale logic means of TJANDRASUWITA to modify the color detection and modification means including user utilization of a weighting signal of luminance levels to modify the image signal enabling "...operator to make color corrections to desired objects on a real-time basis (column 3, lines 52-54) of DALKE et al because TJANDRASUWITA provides greater selection of brightness/luminance levels by mode selecting circuit 403.

16. As per claims 6, 18 and 30, DALKE et al as modified meet limitations of claims 5, 17 and 29. DALKE et al also suggest, wherein the distribution calculator is adapted to smooth the luminance distribution (column 12, lines 25-55), and to detect the one or more minimums from the smoothed luminance distribution (column 12, lines 25-55). It would have been obvious to one skilled in the art at the time of the invention to utilize the gray scale logic means of TJANDRASUWITA to modify the color detection and modification means including user utilization of a weighting signal of luminance levels to modify the image signal enabling "...operator to make color corrections to desired objects on a real-time basis (column 3, lines 52-54) of DALKE et al because

TJANDRASUWITA provides greater selection of brightness/luminance levels by mode selecting circuit 403.

17. As per claims 7, 19 and 31, DALKE et al as modified meets limitations of claims 5, 17 and 29. DALKE et al also suggests, wherein the distribution calculator is adapted to detect the one or more minimums by scanning the luminance distribution from one of the smallest and the highest luminance level to the other one of these two luminance levels and finding one or more luminance levels at which the pixel count value starts increasing and keeps increasing for a predetermined plurality of consecutive luminance levels (column 12, lines 25-55), after it had decreased for a predetermined plurality of consecutive luminance levels (column 12, lines 25-55).

It would have been obvious to one skilled in the art at the time of the invention to utilize the gray scale logic means of TJANDRASUWITA to modify the color detection and modification means including user utilization of a weighting signal of luminance levels to modify the image signal enabling "...operator to make color corrections to desired objects on a real-time basis (column 3, lines 52-54) of DALKE et al because TJANDRASUWITA provides greater selection of brightness/luminance levels by mode selecting circuit 403.

18. As per claims 8, 20 and 32, DALKE et al as meet limitations of claims 1, 13 and 25. DALKE et al does not expressly teach or suggest, wherein the plurality of luminance levels is eight. TJANDRASUWITA suggests wherein the plurality of luminance levels is eight (column 7, line 20-column 8, line 42).

It would have been obvious to one skilled in the art at the time of the invention to utilize the gray scale logic means of TJANDRASUWITA to modify the color detection and modification means including user utilization of a weighting signal of luminance levels to modify the image signal enabling "...operator to make color corrections to desired objects on a real-time basis (column 3, lines 52-54) of DALKE et al because TJANDRASUWITA provides greater selection of brightness/luminance levels by mode selecting circuit 403.

Conclusion

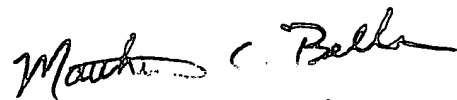
Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J BLACKMAN whose telephone number is 703-305-0833. The examiner can normally be reached Monday-Friday from 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 703-308-6829. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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